

**Optimizing the LHC Interaction Region to Obtain the Highest Possible Luminosity, W. HERR and J. MILES, CERN, -** The CERN Large Hadron Collider (LHC) is designed to reach the highest possible luminosities for proton-proton collisions. The maximum reachable luminosity is mainly limited by the head-on and long range beam-beam effects. It will be shown how the interplay of interaction parameters such as:  $\beta$ -function, crossing angle, bunch spacing, energy and crossing schemes affect the beam-beam effect and therefore the luminosity. The possible side effects of the crossing geometry are evaluated and an attempt is made to define a set of parameters to maximize the luminosity and to derive the scaling properties.